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ABSTRACT

This report describes a program to advance library research skills in two sixth grade science classes. The problem was assessed through a survey, questionnaire, and worksheet, and by direct observation. Analysis of probable cause data revealed that students displayed a lack of research skills related to library research. Some of the causes were the lack of standards for media programs and the lack of support and collaboration between teachers and library media specialists. A review of solutions involved more collaboration and communication between teachers and library media specialists. The American Library Association has also established standards for library media programs that help promote research skills. Post intervention data indicated an increase in student research skills, and improvement in locating books and information in the library, and an increase in student competency in computer search skills. Appendices include copies of consent forms and questionnaires, a worksheet for a computer search, a form for recording observations, a lesson plan and worksheet for the "Computer Catalog Caper," instructions and a worksheet for a research project on scientists, card catalog and Boolean search signs, tips for searching the computer catalog, and a list of research steps. (Contains 25 references.) (Author/MES)

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IMPROVING LIBRARY RESEARCH SKILLS

Catherine W. Holley

An Action Research Project Submitted to the Graduate Faculty of the

School of Education in Partial Fulfillment of the

Requirements for the Degree of Master of Arts in Teaching and Leadership

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Abstract

This report describes a program to advance library research skills in two sixth grade science classes. The targeted middle school is a sixth, seventh, and eighth grade school of 734 students. The middle school is located about 46 miles from Chicago in northeastern Illinois. The problem was assessed through a survey, questionnaire, worksheet, and by direct observation.

Analysis of probable cause data revealed that students displayed a lack of research skills related to library research. Some of the causes were the lack of standards for media programs and the lack of support and collaboration between teachers and library media specialists.

A review of solutions involved more collaboration and communication between teaches and library media specialists. The American Library Association has also established standards for library media programs that help promote research skills.

Post intervention data indicated an increase in student research skills, an improvement in locating books and information in the library, and an increase in student competency in computer search skills.

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CHAPTER 1

PROBLEM STATEMENTAND CONTEXT

General Statement of the Problem

The students of the targeted sixth grade class exhibit a lack of information literacy that affects their efficiency in using the library for locating materials and writing research papers. Information literacy is the ability to know when there is a need for information, be able to identify, locate, and effectively use that information to solve problems. Evidence for the existence of the problem includes observation by the Learning Center Director, discussions with teachers, and assessments that indicate student research performance.

Immediate Problem Context

The targeted middle school was a sixth, seventh and eighth grade school of 734 students. Enrollment during the 2000-2001 school year included 380 male students and 354 female students (Adams et al., 2001). The students were divided into two groups or teams at each grade level. The students were either on a blue team or a white team. There were 48 heterogeneously grouped homerooms. All students were grouped into homerooms except for the two self-contained special education classrooms.

The middle school had three self-contained learning disabilities classrooms, one behavioral disorders classroom, and one basic skills classroom. Except for the basic

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skills classroom, these students were integrated into classes and activities at all grade levels. One hundred seven students had a formal Individual Education Plan (I.E.P.). These were educational plans that were written for specific children with special needs. Five students were on a 504 plan, which was a curriculum adaptation plan to meet the educational needs of students with disabilities (Adams et al., 2001). Some of the adaptation plans could have included modifications for assignments, tests, and physical education classes.

The classes were homogeneously grouped for mathematics and Academically Talented. The school had 90 students in the Academically Talented program which identified, through testing, the top 8% of the student population. The program cluster grouped identified students into classes with teachers who were trained to differentiate the curriculum to meet their needs, but were grouped heterogeneously for English, social studies, and science (Adams et al., 2001). The average class size of grade six in the targeted school was 34.4 students and in grade eight was 34.5 students (School Report Card, 2000). The minimum time spent teaching core subjects to sixth and eighth graders had been 60 minutes for mathematics, science, English, and social studies.

Of the students' parents and/or guardians, 94.9% had made personal contact with the school staff. Personal contact included parent-teacher conferences, parental visits to the school, school visits to home, telephone conversations, and written correspondence (School Report Card, 2000).

The student population was predominately a white-middle class group, which reflected the community as a whole. Ethnic background of the students who were enrolled in the middle school was 92.2% White; 6.1% Hispanic; 1.2% Asian/Pacific Islander; 0.4% Black, and 0.1% Native American (School Report Card, 2000). Of these students, 16 lived with a remarried father, 59 students lived with a remarried mother, 16 students lived with custodial parents, 111 students lived with only their mother, 21 students lived with only their father, and 502 students in the targeted school lived with their natural parents (Adams et al., 2001).

Low-income students may come from families receiving public aid, my live in institutions for neglected or delinquent children, may be supported in foster homes with public funds, or may be eligible to receive free or reduced-price lunches. The targeted school had 9.5 % low-income students, and had 60 students that received free or reduced lunches.

A perfect attendance rate meant that all students attended school every day. The attendance rate for the school was 94.6%. The student mobility rate was based on the number of students who had enrolled in or left school during the school year. Current mobility rate for this school was 24.9%. Chronic truants were students who were absent from school without valid cause for 18 or more of the 180 days. Chronic truancy was 0.9%. The number of chronic truants was seven (School Report Card, 2000).

Staff at the targeted middle school consisted of 71 members. There were 40 regular education teachers, four self-contained special education teachers, one reading

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specialist, one speech and language specialist, two behavior disorder's teachers, one art teacher, three physical education teachers, one learning center teacher, one band teacher, one chorus, two social workers, two psychologists, one health teacher, one computer teacher, one communications teacher, one writing teacher, one foreign language teacher, one English as a second language (ESL) teacher, one nurse, two secretaries, one dean of students, one assistant principal, and one principal. To assist classroom teachers, the school employed seven special education assistants (Adams et al., 2001).

The teaching staff for the middle school averaged 11 years of experience compared to 12.7 years of experience for the school district. As a district, 63.4% of the teachers had their Bachelor's Degree and 36.6% had their Master's Degree plus other accredited hours (School Report Card, 2000). There were 258 classroom teachers in the school district. One hundred percent of the teachers were White. There were 13.8% male teachers and 86.2% of the teachers were female.

The school's mission statement and curriculum guide described the school's goals. The mission statement of the targeted middle school was to strengthen positive communication and respect among students and staff along with implementing reading and writing strategies (Adams et al., 2001). Teams of teachers had worked to align the district's curriculum guide for each subject area. Units of instruction were developed in the areas of reading and mathematics in order to provide a consistent and basic education to all students across the district. The curriculum consisted of textbooks that were available and required in every academic area (Adams et al., 2001).

The Surrounding Community

Located about 46 miles from Chicago in northeastern Illinois, this city was once a small rural community. The economy had relied on recreation and agriculture, but is now considered a part of the urban expansion of Chicago. As of 2000, the population of the city was 21,501 (M. Geraghty, personal communication, July 17, 2001). The surrounding area had a population of 45,117.

Some residents commuted to Chicago or one of the suburbs, but most were employed in or around the targeted city. Data from 1990 revealed that 36% of the labor force in the county was employed in manufacturing, 62% in non-manufacturing and 2% in agriculture. The city had four major businesses, which employed a total of 3,000 people (Community and School Profile, 2001). The estimated average household income in 1992, for those living within a five-mile radius, was $47,853.00.

The community served as a valuable resource for the targeted school. Volunteers worked to support the school district's curricular and co-curricular programs. Many local businesses and the Chamber of Commerce had contributed goods, services, and monetary donations to the school district (Community and School Profile, 2001).

There were eight schools in the community school district, which covered an area of 41 square miles (Community and School Profile, 2001). Six of the schools were elementary and two schools were middle schools with a total student enrollment of 4,633. To ease overcrowded conditions, a new school had been recently added. On November

3,1998 a referendum passed that gave the school district 25 million dollars for school improvement (J. Werhan, personal communication, July 17, 2001).

The average financial indicators for the school district were listed as equalized assessed valuation, total school tax rate, instructional expenditure, and operating expenditure. Equalized assessed valuation included all computed property values, less homestead exemptions and adjustments for tax abatements, which the district's local tax rates had been calculated. The district's equalized assessed valuation per pupil was $142,456 (School Report Card, 2000). The total school tax rate was defined as the district's total tax rate that appeared on local property tax bills. The total school tax rate per $100 was $2.71 (School Report Card, 2000). Instructional expenditure included the direct costs of teaching students for the interaction between teacher and student. Instruction had a very narrow and restrictive definition. Funding for instructional expenditure per pupil (1998-1999) had been $3,034 for the school district. Operating expenditure (1998-1999) includes instructional expenditures, costs of pupil support services, instructional staff support services, school administration, business support services, central support services, community services, debt services, payments to other governmental units for services provided, and central administration service. These expenditures were $4,663 per pupil. All of the above financial indicators had been divided by the 9-month Average Daily Attendance to derive the per pupil figures (School Report Card, 2000).

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National Context of the Problem

Students are lacking skills needed to access information to do research and solve problems. Because of this, the National Forum on Information Literacy (NFIL) was created in 1990. It was created in response to the American Library Association's Presidential Committee on Information Literacy. Information literacy is the ability to know when there is a need for information, be able to identify, locate, and effectively use that information to solve problems.

The International Federation of Library Associations and Institutions (IFLA) held their 65th Council and Conference in Bangkok, Thailand on August 20th to the 28th, 1999. Their concern at this conference dealt with the study of information literacy and skills training in the undergraduate curriculum (Hepworth, 1999). The Bangkok Conference found that students had limited skills in the area of information literacy.

The American Association for Higher Education (AAHE) and the National Education Association (NEA) have both developed activities and programs to target the need of information literacy. These professional groups are addressing the needs to teach information literacy, but there are still numerous students who are unfamiliar with the process of identifying, locating, and processing information in order to solve a problem or research a paper (Kunkel, Weaver & Cook, 1996).

Numerous studies show that college students do not have the skills and information needed to use libraries to do research (Kunkel et al., 1996). Complaints about college freshmen not having effective library skills have become commonplace

among college librarians and faculty (Kunkel et al., 1996). For example, students from the University of Northern Colorado and John Hopkins University were unfamiliar with database searching and locating information in periodicals.

Instruction in library and information skills is essential to every school program. It helps students access information and emphasizes problem solving. This type of instruction has also proven to increase scores on achievement tests. A study in Alaska showed the importance of a well developed program when 86% of the students scored proficient or above on state reading tests compared with 73% of students in schools with less-developed programs (Hamilton-Pennell, 2000). Well-developed programs also have a significant affect on student's intellectual curiosity, exploration behaviors, reading and vocabulary skills (Small, 1996).

Teaching information literacy skills has been proven to have a positive affect on students, but some schools are not teaching these skills. As a way to integrate information literacy into the curriculum, Hepworth (1999) had sent teachers a survey about their views on that matter. Unfortunately, the majority of teachers did not respond to the survey (Hepworth, 1999). The lack of knowledge about teaching skills or the lack of motivation to teach these skills will affect the way students problem solve and use information.

Kunkel's research showed that more than half of the students in the survey received formal library instruction in high school, 47.3% in middle school or junior high,

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and 30.6% in elementary school (1996). Of the students surveyed, 4.1% reported that they had never received library instruction (Kunkel et al., 1996). Though, that is a small percentage of students who had never received instruction, the issue still needs to be addressed.

Students at all grade levels need instruction in information literacy. When researchers showed that college students were unable to use libraries or find information for research, it was apparent that more instruction was needed. Instruction should be given throughout a student's schooling and reinforced throughout their lifetime. With more emphasis and instruction on information literacy, maybe more students would become successful researchers and problem solvers.

CHAPTER 2

PROBLEM DOCUMENTATION

Problem Evidence

In order to document the lack of research skills in the targeted sixth-grade classes, surveys, a questionnaire, a research activity, and direct observations were noted over a six-week period of time. Observation of students as they used the Learning Center/ library indicated the lack of knowledge they had as they attempted to find the information they needed.

Fifty-four students in the two-targeted sixth-grade science classes were involved in a survey. The five questions on the Likert Survey gave the researcher a better understanding of the students' attitude about using computers and the school Learning Center (Appendix C). The survey helped determine if the students were given instructions on the use of the computers to find information and library materials. A summary of the results of the survey has been presented in Figure 1.

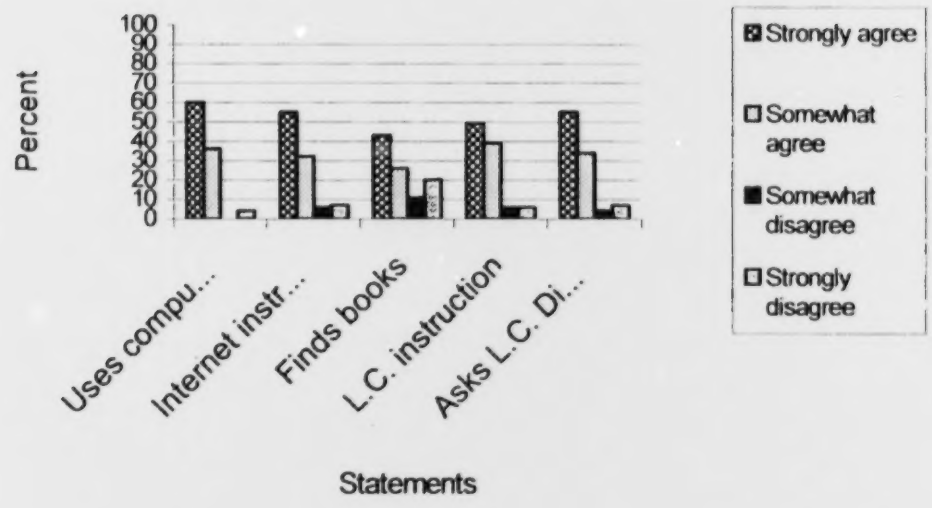

Figure 1. Students' attitude on using computers and school LC Jan. 17, 2002.

The survey indicated that 60% of the students in the two-targeted classes felt very confident about using computers, and over 50% indicated that they had been instructed on how to use the Internet for research. Less than half of the students indicated that they knew how to use the computers to find books in the LC, but 50% indicated that they were given instructions on how to use the Learning Center. This may indicate that instruction for using the LC did not cover using the computers to find information or students did not feel confident about using computers to locate books. The majority of students, though, would ask the LC Director for help in locating materials.

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A questionnaire was also given to the two science classes, which gave the researcher insight on when students used the school LC and/or the public library (Appendix D). It gave some background information about the students' interest in computers and how the students used the computers. The questionnaire consisted of 10 questions. Students circled the answers that they felt best responded to the questions. The responses for 8 of the questions are presented in Figure 2.

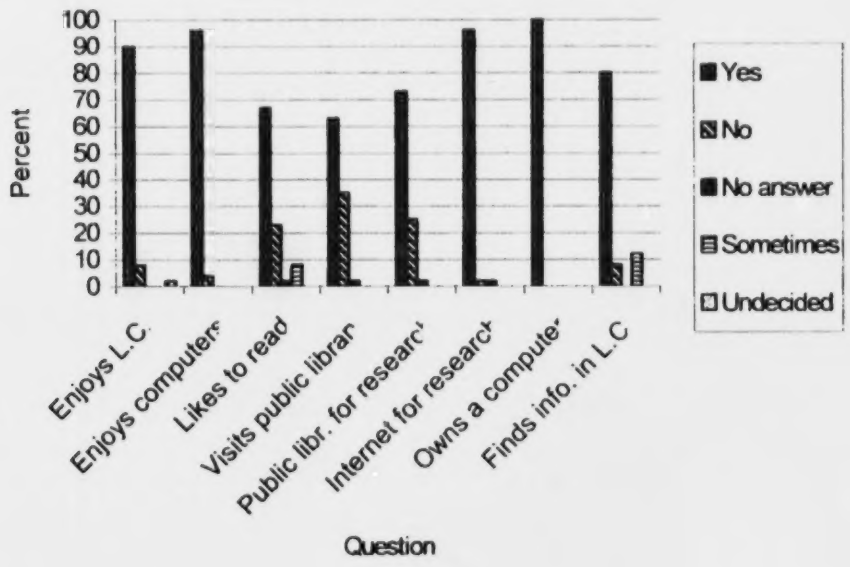

Figure 2. Student use of the LC and public library Jan. 24, 2002.

According to the answers on the questionnaire, the majority of the students enjoyed using the school LC and enjoyed using computers, but fewer students enjoyed reading. That may indicate that students have been using the LC computers more for

research and class projects than to find reading material. One hundred percent of the targeted students indicated that they owned a computer, but 4% did not enjoy using computers. This may indicate that students were unable to use their home computers or felt uncomfortable using them.

One of the questions asked the students to circle the amount of time they felt that they spent in the LC. Figure 3 shows that information.

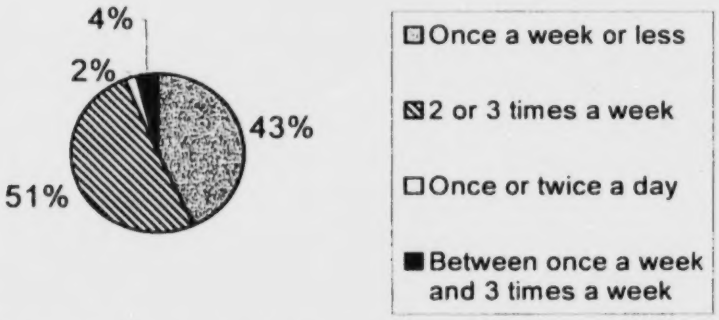

Figure 3. Time spent using the LC Jan. 24, 2002.

The questionnaire indicated that 51% of the students used the Learning Center 2 or 3 times a week and 43% used it once a week or less. The researcher has noted that many students come into the LC once a week to return and check out books. If the students were using that premise to answer the question, then the students are not spending time researching in the LC. Since only 2% of the students come into the Learning Center on a daily basis, the researcher must figure that these students are not doing research but may be using the computers and materials for other reasons.

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The last question on the questionnaire asked the students to estimate how many hours a day they usually spend using computers. Figure 4 has that information.

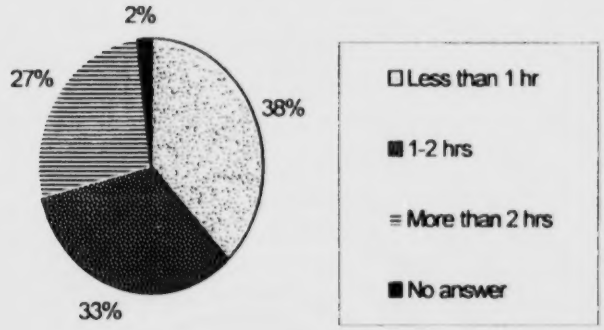

Figure 4. Hours spent using the computers Jan. 24, 2002.

The information from Figure 4 shows that 33% of the students are using computers 1-2 hours, and 27 % are using them more than 2 hours each day. This information leads the researcher to believe that the students must be using their home computers. Figure 3 has indicated that students are not using the LC enough for them to be able to use the computers for over an hour each day. Even if some of the students considered their technology class as part of their computer time, which would be about 42 minutes, 60% are still spending at least 30 minutes more on the computer each day.

An activity involving searching for information on the computer was given to the two-targeted science classes (Appendix E). The students were given 20 minutes to find information about books in their LC, information from the World Wide Web, and information from the electronic encyclopedia World Book Online. Figure 5 shows the percent of students who were able to find the correct information.

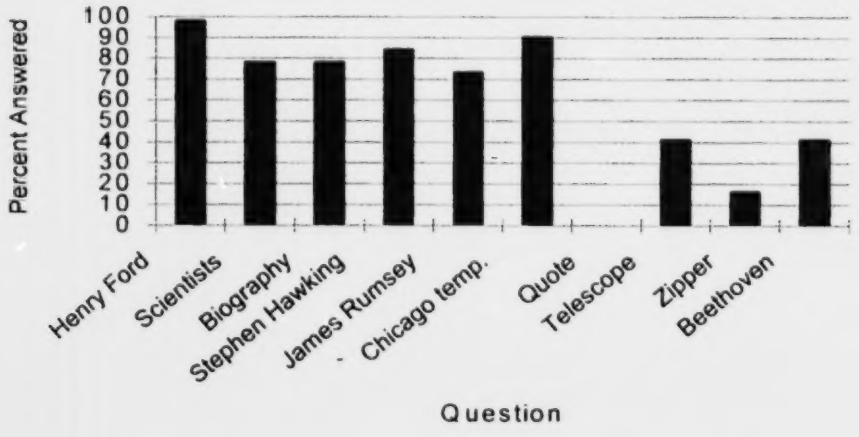

Figure 5. Results from the computer search Feb. 12, 2002.

The students were able to answer the questions that gave them the area they needed to search. For instance, almost all the students were able to find the birth date of Henry Ford when they were directed to use the World Book Encyclopedia. They were also able to find the call number of most of the books in the LC.

The World Book Online no longer had a "quote of the day" so that question did not need to be answered, but three students did find something on that web site that they thought was the quote of the day. They were persistent in their search. The questions about the telescope, zipper, and Beethoven all had low scores for answers. These were questions that did not direct the students to the area where the answer could be found.

The researcher concluded that students could find information when given the location, but when they had to think where the information could be found, they were not as sure of themselves. To find out who was credited with developing the zipper, students needed to locate the book on the shelf in the LC and find the information. Fewer than 20% of the students found that information.

By observing the students as they worked on the computers, the researcher was able to assess their ability to find information effectively and within a designated period of time. The activity was done in February 2002. It was administered to the two-targeted sixth-grade science classes with the approximate total of 50 students.

The researcher observed three activities as the students worked (Appendix F). Table 1 indicates the activity and number of students involved during the time spent doing a computer worksheet.

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Table 1

Direct Observation of Students Researching on Computer Feb. 12, 2002

Activity	Number
Number of students who are talking	18
Number of students who have asked for help	28
Number of students who have finished before the time limit	2

Though the number of students who were talking to each other had been relatively low, 18 students, students muttered and made verbal observations. They also asked questions to no one in particular. The researcher did note some of the comments. This would help understand the students' progress or lack of progress as they worked on the activity sheet. Some of the comments had been about the slowness of the computers, how distracting popup ads were, and one student admitted to hating computers.

Twenty-eight students asked for help during their computer project. This would be consistent with a previous survey, see Figure 1, which indicated that students would ask the LC Director for help. Some of the questions indicated that some students did not know where to find the library computer card catalog, or the call number of particular books. They also did not know about World Book Online. In Figure 5, the students indicated that they found the call numbers and information, but because there were only

two students who completed the activity, the researcher believed that the students were unsure and took more time to search for information.

Only 2 students were able to finish the 10 questions within the time period. As noted previously in Figure 1, over 40% of the students indicated that they had been instructed on finding books and information. Fifty percent indicated that they had been instructed on how to use the LC, yet they did not know about call numbers or about using the electronic encyclopedia. This may indicate that the students needed additional instruction or more in depth instruction into using the computers to find books and information. Also, more students may have finished the activity if more time had been given.

Probable Causes

The students in the two-targeted science classes exhibited a lack of research skills or information literacy that affected their efficiency in using the Learning Center for locating books and information. Evidence for the existence of the problem included direct observation, questionnaires, surveys, and research projects. Though the students in the targeted class responded favorably to a questionnaire and survey regarding their knowledge of using the computers to find books and information, they did not fare as well when they had to complete a computer activity.

Probable school based causes for the lack of information literacy may include lack of training for teachers, students, and the LC Director. The absence of full time support

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staff in the school library could contribute to low information literacy skills and the lack of communication between the LC Director, the teachers, and the principal. Curriculum concerns or time constraints may also affect students' ability to effectively search for information.

The type of lessons or lack of lessons that students had received could have contributed to the lack of information literacy skills. The LC Director in the targeted school had a curriculum that was used to teach library skills, but did not have a curriculum or guide to teach the students how to effectively use the World Wide Web.

Lack of support staff in the school's library could have been another cause for the students' inability to be good researchers. Without full time support, the LC Director would not be able to spend as much time teaching students and would not be available to go into the classroom to aid in instruction. The targeted school had one full time person in the LC (Adams, et. al, 2001). The support staff consisted of part time volunteer parents and a part time paid employee.

Lack of communication between the LC Director and the teachers would affect the teaching of research skills. When teachers assign research projects without first consulting the LC Director, students wasted time looking for information that may not have been available in their learning center. Lack of communication with the principal would not allow the Director to express the needs necessary to teach the students research skills.

The lack of use of the targeted school's LC by some teachers could also limit students' knowledge of research skills. Some teachers preferred to have research materials sent to their rooms for students to use instead of having the students use the resources in their LC. Students would not be exposed to the many materials available or to the many facets involved in researching a paper.

A crowded curriculum may also prevent teachers from using the LC. At least one teacher from the targeted school felt that the demands of the curriculum prevented the students from regularly using the library.

The literature suggested several underlying causes for the lack of research skills in students. The media program is an important concept in teaching students information literacy or the basics of research skills. Not only should there be a program in place, but it is important to teach the skills when the students need them. Literature also found that the media specialist played an important role in the teaching of information literacy skills. Social factors, the concept that the World Wide Web would be able to aid any researcher, and cost cutting were issues noted in the literature.

According to Hepworth (1999), instruction for students needed to be well defined since students were generally unaware of the sources and merits of various types of information or how information was structured. Often skills were taught when students would not need the information. Some librarians and media specialists were teaching research skills to their students when the students would not be ready to do a research project. Students were more likely to remember information and use the information

properly when skills were taught as they were needed. Merrill (1995) also found that instruction needed to be at a time when students would need the research skills

Planning played an important part of teaching library skills. Most assignments had been made without consulting the librarian (Merrill, 1995). Students lacked the skill and guidance they needed to complete a lengthy assignment and they lacked information gathering and information processing skills. Without sufficient planning, and some instruction before the project, the teacher fell into the accustomed role of assignor and the librarian or media specialist had become the resource finder.

Teaching students research skills as they would need them was an important part of information literacy, but it had been important to also have a well-developed library media program. The level of development of the library media program was a predictor of the success of its students (Lance, 2001). Kunkel (1996) noted that an assessment of college freshmen showed that they lacked appropriate library skills needed to do college level work. A survey administered to graduating seniors at the University of California-Berkeley showed that they rated their library knowledge and skills as excellent or pretty good. When the researcher compared students' self-assessments of competency with their actual scores on the questions designed to measure their library and information research skills, anywhere from 35.5 % to 81 % received poor or failing scores (Maughan, 2001). The most fundamental conclusion that was drawn from the surveys was that students thought they knew more about accessing information and conducting library research than they were able to demonstrate when put to the test. In five of the eight

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groups studied between 1994 and 1999, the median score for graduating seniors was a failing score. As indicated in other studies of student library research skills, the UC-Berkeley experience confirmed that students continued to be confused by the elementary conventions for organizing and accessing information (Vaughn, 2001).

Literature has also stated the importance of the librarian or media specialists in teaching research skills. Many library media specialists had routinely been excluded from meetings that affected curriculum, technology, and resources and were referred to by Gary Hartzell (as cited in Lowe, 2000) as the invisible professional. If district administrators viewed the media specialists as only capable of teaching books and literature, then the media specialists would be replaced because classroom teachers could teach book-related skills (Mohn, 2001). As the need for people to find and evaluate information became greater, universities that eliminated library school programs did not understand the role of the librarian in the information-based society (Mohn, 2001).

According to Hartzell, (as cited in Lowe, 2000) teachers and administrators were not aware of the valuable contributions that the library media specialists make to the school. Hartzell (as cited in Lowe, 2000) pointed out that there had been no major schools of education that have focused on the use of the library and information in learning. In almost all teacher-training programs there had been little mention of the roles of the library media program and the library and information professionals.

As the World Wide Web became more popular as a research tool, some people thought that they would no longer require research skills to find information. A

staggering rise in the use of question-and-answer services on the World Wide Web told a different story (Lowe, 2000). As the web became larger and more tangled, users would need help in finding what they wanted. The Ontario School Library Association recognized that in the early 1990s. On-line access to sources beyond the school library media center began the information explosion which made it critical for students to physically access these new sources of information (The Ontario School Library Association, 1998).

The literature acknowledged that socioeconomic factors might have prevented students from learning research skills or becoming information literate. The last decade of the 20th century saw a widening gap between the information rich and information poor; a gap commonly referred to as the Digital Divide (Davis, 2001). The "have nots" were commonly considered to be members of historically under represented ethnic groups such as African American, Latino Americans, and Native Americans (Davis, 2001). Only 23.5% of African American households and 23.6 % of Latino household have Internet access (Davis, 2001). Davis found that income played a major role in whether a household owned a computer and whether they had Internet access.

Gary Hartzell, professor of education at the University of Nebraska pointed to the widespread trend of cutting library budgets, and in some cases library media positions, to ease school financial problems (as cited in Lowe, 2000). Mohn (2001) noted that as the country made a shift from the Industrial Age to the Information Age, many school districts were replacing librarians with paraprofessionals. District administrators did not

understand that they were eliminating the professional who could help teach students how to find, select, analyze and communicate the information that technology provided (Mohn, 2001).

Mohn (2001) noted that universities had shut down two top library schools in the United States because the schools had low teacher to student ratios. It had cost money to run the library programs, and the programs were not considered valuable compared to the new computer technology departments (Mohn, 2001). California ranked close to the bottom nationally on funding for school libraries (Maughan, 2001). In 1994, the entire state had only 850 school libraries (Maughan, 2001). Seven out of eight schools had less than half-time professional library staffing. The national ratio of library media specialists to students had been 1:882, and in California the ratio had been 1:5342 (Maughan, 2001).

The lack of information literacy has been wide spread. It has affected students from elementary to college. Some of the same concerns that were written in the literature pertained to the targeted school. Lack of communication between library personnel and teachers and funding for support staff were concerns at the targeted school and in the literature that had been reviewed. One very similar problem, though, had been the fact that students in a college study thought they were capable of research, but failed when given the opportunity. Students in the targeted school also felt confident about their research skills, yet were not able to correctly answer 10 questions that could have been found on the computer. Students in the targeted school enjoyed using computers and their school Learning Center. They may not have known as much about finding

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information on the computers as they had thought, but liking computers and liking their LC will make it easier for them to learn the proper research skills.

CHAPTER 3

THE SOLUTION STRATEGY

Literature Review

Library research skills or information literacy has become a nation wide concern. The American Library Association (ALA) has come to the forefront with recommendations on how people can become information literate. The American Library Association Presidental Committee outlined the importance of information literacy. This committee led to the formation of the National Forum on Information Literacy, a coaliation of more than 65 national organizations. The American Association of School Librarians' (AASL) 1988 publication, Information Power: Guidelines for School Library Media Programs set guides for information literacy. Its 1998 publication, Information Power: Building Partnerships for Learning, emphasized the fact that the mission of the school library media program would be to ensure that students and staff would be effective users of ideas and information (Plotnick, 1999).

The American Library Association's Committee on Information Literacy was appointed in 1987. Their report, which was released in January 1989, stated the need to restructure the learning process so people could learn and problem solve throughout their lifetimes (ALA). The learning process would actively involve students in helping them know when they had a need for information, identifying information needed to address a

given problem or issue, finding the needed information and evaluating the information, organizing the information, and using the information effectively to address the problem or issue at hand.

The Presidential Committee also envisioned an "Information Age School" (ALA, 1989). The school would be more interactive. Both teacher and student would be familiar with gathering data, synthesizing, analyzing, interpreting, and evaluating the information in all its forms. Students would have access to computers, libraries, and various databases. Teachers would work with librarians and media resource people, and the librarians would lead workshops and be knowledgeable about information technology.

The Library Power Program was one program that came about in 1988. It was launched from funds from the DeWitt Wallace-Reader's Digest Fund. Its purpose was to help restore the school libraries in New York City. A decade and $40 million later, this program expanded to 700 elementary and middle schools in 19 communities, serving thousands of children. What began as a way to help libraries in the New York City schools, became a model to help teaching and learning become more effective throughout various communities.

Although a national program, Library Power reflects the needs of the individual community that seeks funding. Local education funds manage their Library Power grants to help make renovations of library space, purchase books and other materials, and help

pay for professional development for librarians, teachers, and administrators on ways they could integrate the school library into teaching and learning activities.

The communities had a commitment to Library Power. They had a vision for improving teaching and learning through the library media program, they mobilized their board and community for support, and they made a commitment to have full-time school library media specialists in their libraries (Public Education Network, 2001). The following goals were agreed upon by each site selected for the DeWitt Wallace-Reader's Digest Funds. Each site would create a national vision and new expectations for public elementary and middle school library programs; they would encourage new uses for the library's physical and human resources, and create exemplary models of library media programs that would be an integral part of the educational process.

Supporters would strengthen the role of the librarian as a teacher, information specialist, and learning facilitator who would assist teachers and students in becoming effective users of ideas and information. They would encourage collaboration among teachers, administrators and librarians that would result in significant improvement in the teaching and learning processes, and demonstrate the significant contributions that library programs would make to school reform and restructuring efforts (Frohreich, 2002).

Those chosen for funding would also encourage the creation of partnerships among leaders in school districts, public libraries, community agencies, business communities, academic institutions and parent groups to improve and support school library programs (Frohreich, 2002).

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Library Power has spread and reflects the needs of the community in which the schools are located. To help communities use the Library Power program effectively, the DeWitt Wallace-Reader's Digest Fund made a grant to the Public Education Network (PEN) to provide technical assistance to the participating schools. A separate grant was also made to the American Association of School Librarians to help administer programs. While each school that is funded has its own needs, all incorporate the best practices outlined in Information Power, a 1988 report of the American Library Association. This report laid the groundwork for the Fund's initiative.

Information Power suggested that libraries accommodate a variety of activities, such as group learning, computer research and quiet reading. Book collections, research materials, computers and software must be relevant to classroom learning. It was also suggested that libraries operate on flexible schedules that would allow teachers and students to use the library throughout the entire school day as needed, rather than only during scheduled class visits.

Librarians and teachers must also participate in ongoing collaborative planning to identify ways the library would best support and enhance classroom learning. Libraries must be staffed by full-time librarians who would concentrate on supporting teaching and learning activities while support staff and volunteers perform many of the clerical duties traditionally handled by librarians.

In 1988, the American Association of School Librarians and the Association for Educational Communications and Technology published Information Power: Guidelines for School Library Media Programs. According to Coatney, the mission statement for the library media program was to ensure that students and staff would be effective users of ideas and information (1998).

The American Library Association Presidential Committee on Information Literacy: Final Report outlines recommendations that will benefit students so they can become information literate (1998). The committee's recommendations suggested that we reconsider the ways we have organized information institutionally, structured information access, and defined information's role in our lives at home, in the community, and in the workplace.

The committee also suggested that a coalition from Information Literacy should be formed under the leadership of the American Library Association, in coordination with other national organizations and agencies, to promote information literacy. Research and demonstration projects related to information literacy would need to be undertaken. State Departments of Education, Commissions on Higher Education, and Academic Governing Boards would be responsible to ensure that a climate conducive to students becoming information literate exit in their states and on their campuses. Teacher education and performance expectations would also be modified to include information literacy concerns.

The National Forum on Information Literacy was created in 1990 as a response to the American Library Association's Presidential Committee on Information Literacy. Breivik reports that the Forum supports, initiates, and monitors information literacy projects (2001). It encourages the creation and adoption of information literacy guidelines by such agencies as the State Department of Education, Commissions on Higher Education, and Academic Governing Boards.

The Forum also works with teacher education programs to ensure that new teachers are able to incorporate information literacy into their teaching. The Forum's work is to empower member organizations with ideas and resources to promote information literacy. Breivik notes the following as some of the activities that member organizations have completed (2001).

The American Association for Higher Education created a committee that regularly offers programs on information literacy at its annual conferences and the National Education Association (NEA) incorporates information literacy into its Teacher Education Initiative Program. The NEA also published a book about information literacy that is targeted at elementary school principals.

The National Association of Secondary School Principals devoted an issue of its journal to the topic of information literacy in 1991 and 1998. The Commission of Higher Education of the Middle States Association of Colleges and Schools listed specific information literacy questions in its 1990 "Framework for Outcomes Assessment," and in 1996, reaffirmed the critical role of information literacy in general education programs.

The Association of Supervision and Curriculum Development required each of its units to report annually on what it has done to support and promote information literacy.

The National Council of Teachers of English has an Information Literacy Committee that maintains a web site with information about its current activities, abstracts on presentations and other related material. The National Council for Social Studies has also included two listings of essential skills, acquiring information and organizing and using information, in their guide for curriculum standards.

The ERIC Clearinghouse on Information and Technology has established a web site to showcase scenarios of information literacy at the school and college level and to provide other information on the topic. In 1993, 32 of the colleges of Washington State and Community College developed and endorsed a position paper supporting the inclusion of information competency in their core courses. In 1994-1995, the Forum conducted a survey of 2,326 post-secondary institutions to determine the extent information literacy has been integrated into higher education. The California State University system and the California Community College system have made plans to facilitate and evaluate the development of information literacy among their students.

The American Association of School Librarians (AASL) developed a statement on information problem solving. Collaborating with the Association for Educational Communications and Technology, the AASL has recommended information literacy skills, which all students should master before high school graduation.

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According to the American Library Association's Progress Report on Information Literacy, some states have made information literacy a top priority in their education programs (1998). Colorado and Utah require student competence in information literacy throughout their school districts. The Colorado State Library issued Guidelines for Information Literacy that has been adopted by the school districts. In Utah, information literacy is implemented through the Information Literacy Across the Curriculum Project. Teams of educators-the principal, the school library media specialist, and classroom teachers-are trained in writing and teaching thematic units of integrated curriculum.

In The Information-Powered School, the Public Education Network (PEN) and the American Association of School Librarians have designed a plan that school library media specialists and teachers can use to help students become information literate (2001). It outlines a specific plan for school library media specialists and teachers to share the responsibilities of planning, teaching, assessing, and offering a coherent curriculum.

Along with the plan for the information-powered school, there is Information Power: Building Partnerships for Learning. This is a tool kit that provides examples of how schools and communities improve teaching and learning in all students (PEN, 2001). The plan depends on several key points.

One of the key points is the high level of commitment and leadership for those involved in the plan, and commitment has to come from the people who are the key decision-makers for the school. Collaboration and professional development that foster

improved teaching and resource-rich student learning must be implemented and partnerships between schools and the community must be developed. The community needs to support the school library media program and raise private support for public funding.

Information Power also outlines how schools might go about creating learning communities with the library at the center. The school library media specialists or librarians are seen as teacher, instructional partner, information specialist, and program administrator (Ellis & Lenk, 2001). The school librarian and media specialist are uniquely qualified to contribute to the curriculum and to bring about a school wide information literacy plan. The plan would be designed to take advantage of the multi-faceted role of the library media specialist. As the information specialist, the school library media specialists have the expertise in acquiring and evaluating information sources in all formats (Ellis & Lenk, 2001).

Along with giving the media specialist and librarian new roles and models for improving their students' information literacy, standards have been suggested. Ellis and Lenk (2001) list the three main goals and the standards for information literacy that have been included in the American Library Association and Association for Education Communication and Technology's Information Power: Building Partnership for Learning. To be information literate, the student will be able to access information efficiently and effectively, evaluate information critically and completely, and use information accurately and creatively.

Information literate students will be independent learners. They will pursue information related to personal interest, appreciate literature and other creative expressions of information, and will strive for excellence in information seeking and knowledge generation (Ellis & Lenk, 2001).

The third goal for students would be for them to be socially responsible. The student who contributes positively to the learning community and to society is information literate and recognizes the importance of information to a democratic society, practices ethical behavior in information gathering and information technology, and participates effectively within groups to pursue and generate information (Ellis & Lenk, 2001).

Further studies show that the library media program is important for teaching information literacy and for increasing student achievement. Findings from three statewide studies show that a strong library media program helps students learn more and score higher on standardized achievement tests (Hamilton-Pennell, 2000). Christine Hamilton-Pennell reports that studies done in Alaska, Pennsylvania, and Colorado support research that a school library media program with a full-time library media specialist, support staff, and a strong computer network (one that connects the library's resources to classrooms and labs) leads to higher student achievement (2000).

The Alaska study demonstrated the importance of a full-time library media specialist who was involved in instructional activities. Scores were higher when the library media center was open longer hours, the library media had a cooperative

relationship with the public library, the library provided access to the Internet, and the library had a collection development policy.

The Pennsylvania study showed that improved scores were dependent on adequate staffing at all three grade levels tested. Adequate staffing meant at least one full time certified library media specialist and one full time support staff member. With more staff, the library media specialist spent more time teaching cooperatively with classroom teachers, teaching information literacy skills, providing training to teachers, serving on curriculum and standards committees, and managing information technology (Hanilton-Pennell, 2000).

The Colorado study showed higher student achievement when there were more library media staff members per 100 students and when the size of the collection was increased. Other important aspects that increase student achievement were an increase in operating expenditures per student, more access to computers, an increase in the number of professional librarians, collaboration between library media specialists and teachers, and the number of individual students who visited the library media center (Hamilton-Pennell, 2000).

Research shows a great wave of interest in teaching information literacy in schools. The demand to analyze and search information has become even more pertinent since the World Wide Web. The American Library Association, the American Association of School Librarians, and the Public Education Network are a few of the organizations that have been instrumental in setting standards and promoting

information literacy. The major theme that has been repeatedly stressed in the research has been the importance of a good library media program.

Communication between the library media specialist, librarian, or learning center director with the principal and teachers will help students with their research and information literacy skills. This solution will be done in the targeted school to help students. The Learning Center Director/media specialist will begin to communicate with the targeted sixth-grade science teacher. They will work together to help students find information in their Learning Center/library and on the World Wide Web. They will collaborate on a lesson and a research project.

Posters, signs, and brochures will be made and hung in the Learning Center (LC). These will give search techniques and helpful information that students will be able to use while researching. Posters will remind students of the importance of call numbers for locating books on the shelves. There will be posters for the Dewey classifications. Signs indicating the location of books will be made and put on the bookshelves to help students locate books. Also, there will be signs that will remind students of the various types of searches available on the card catalog.

From the research and studies conducted, it is obvious that a strong media program not only increases student achievement and information literacy skills, but gives them life long learning skills (Hamilton-Pennell, 2000).

Project Objectives and Processes

As a result of increased instructional emphasis on library and computer research skills, during the period of January 2002 to March 2002, the sixth-grade students from the targeted classes will increase their ability to use the library computers and the World Wide Web in science class, as measured by a research paper.

In order to accomplish the project objective, the following processes are necessary:

1. Materials that aid in research skills will be developed.
2. A series of learning activities that address research on the computer will be developed.
3. Research paper

Project Action Plan

On January 17, 2002:

- Make enough copies of the permission slips for two classes-approximately 54 slips. (Appendix A)
- Make a few copies of the permission slip necessary for students who are 12-years-old or older. (Appendix B)

In the targeted classroom the teacher will:

- Explain to each of the two-targeted sixth-grade classes that they will be part of a research project for a graduate class.

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- Explain that the project will take place in the classroom and in the Learning Center during their regular science period and that it will continue through March 14, 2002.
- Explain that the project will involve a survey, a questionnaire, a timed activity using the LC computers, observation for the activity, a lesson on using the computers for research (Appendix G), and a research paper that they will complete for their science class (Appendix H).
- Explain that the survey and the questionnaire will be given on January 24 and 31.

The Likert Survey will give a better understanding of their attitudes about using computers and about their school LC. It will show how well they know how to use the library computers to search for books and information. The questionnaire will help with background information on when and for what activity they use their LC and/or their public library.

- Explain that an activity using the LC computers will take place on February 7. It will be a timed activity involving a worksheet with questions that they will be able to answer by using the library's card catalog and the World Wide Web. This will show how well they can find information by using the computer.
- Explain that students will not be graded on the survey, questionnaire, or the activity.

- Explain that a lesson on how to use the library computers and other library materials for research will take place on February 14 in the LC.
- The class will be assigned their research projects on February 21. This project will involve researching facts about a famous scientist. The project will be due on February 28, 2002. Students will share a time line of their scientist and give an oral presentation. They will be graded on their project.
- Explain that on March 7 the survey will be given again as a post activity.
- Explain that on March 14 the class will finish the project by giving the researcher feedback. Give out a little treat or play a game.
- Permission slips. Explain the permission slips that students need their parent or guardian to sign. Ask if any student is 12 or older and hand out the additional slip. Tell students that permission slips need to be returned before January 24, 2002
- Hand out permission slips. Ask for questions.

During the week of January 21, collect permission slips.

On January 24 in the regular classroom:

- Copy enough Likert Surveys for the two-targeted classes for a total of about 54 students.
- Review the permission slips and answer questions students may have.

- Give out the Likert Survey to the two-targeted classes. Remind students that they should not put their names on the sheet.
- Collect the surveys. The regular classroom teacher will then continue with the regular class lessons.

During the week of January 28, review the answers to the questionnaires

On January 31:

- Copy 54 questionnaires.
- During the regular science class periods, explain the questionnaire to each of the targeted science classes. Students should circle the answers that they feel best answers the question.
- Hand out the questionnaire.
- Remind students that they should not put their names on the sheet.
- Allow as much time as possible for students to complete the questionnaire.
- When the students have completed the questionnaire and they have been collected, the classroom teacher will continue with the regular class lesson.

During the week of February 4, begin making posters and signs with helpful research tips. (Appendix I) Do not hang the posters yet.

On February 7:

- Make enough copies of the Computer Search activity for 54 students.

- Make two or three copies of the observation sheets. Attach to a clipboard. Have a clock or timer.
- Before going into the classroom, have all the computers in the LC booted up and ready to use. Students will not need to logon under their own names and passwords. The computers will be logged on under the generic name and password that is used for the LC.

In the classroom:

- Explain to each class of students that they will be going into the LC to do an activity on the computer. They should bring a pencil or pen.
- Explain that they will be observed and notes will be taken on how well they are doing the activity, but their names will not be noted on the observation sheet.
- Explain that 12 of them will be working on the computer at one time and they will have 20 minutes to do the activity. While some students are in the LC, other students will be in their regular science class doing an activity with their classroom teacher.
- Explain that at the end of the 20 minutes, they are to turn in their sheets and return to their classroom.
- Choose the first 12 students in a row. Give them each an activity sheet.
- Escort the students to the LC and direct them to sit at a computer.

- When they have been seated, they may begin the activity.
- When a student returns to the classroom, the next student in the row that has not done the activity will go into the LC to do the activity.
- Activity sheets will be handed to the students as they enter.
- Note any activity that corresponds to the observation sheet.

If all the students have not been able to complete the activity, have the remaining students come into the L.C. on February 8 during their regular science class period. Follow the same instructions as above. Continue to observe and note the students' activities. Allow them 20 minutes to complete the activity.

During the week of February 11:

- Go over the activity and observation sheet.
- Devise a lesson plan that will cover some trouble areas.
- Make a task chart for cooperative groups.

On February 14:

- Prepare for teaching the Computer Catalog Caper
- Have the VGA TV hooked up to one of the LC computers.
- Have the computers set up to use the card catalog.
- Have copies of activity sheet, task chart, playing cards for dividing students into groups, and pencils.

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In the classroom:

- Explain that they will be working in cooperative groups. They will be divided into groups according to the number on their card. To divide into cooperative groups, take out 27 cards from a deck, or the number needed for the students present.
- Students work within groups of two or three people. Have each of the science classes come into the LC. This will be done during their regular science class period.
- Hand out cards. Students holding hearts will be the "writer of the answers." Students with a club will be the one typing the information into the computer. The third person in the group will help with ideas.
- Students will gather near the VGA TV.
- Explain that the lesson will help them search for books and materials in the LC and on the World Wide Web.
- Show the students the new icon on the desktop for the card catalog.
- Click on the icon.
- Describe the meaning of each icon on the card catalog.
- Demonstrate title, author, subject, keyword, series, and call number searches.
- Demonstrate how to use the Boolean search to expand or limit their searches.
- Remind students about call numbers.

- Show the students how to connect to the World Wide Web.
- Demonstrate the address line for searching. Not all topics have web addresses.
- Point out search techniques. Explain that advanced searches on the Web will also use the Boolean search.
- Ask for questions and clarification along the way.

The group or groups of students, who have finished the lesson or have the most correct answers before time is called, will get a treat.

- Have the different groups give an answer that they found on the card catalog or the World Wide Web.

After the activity of sharing, students give their work sheets to the teacher and return to their regular classroom.

During the week of February 18:

- Hang posters and signs near the computers in the LC.
- Make brochures with helpful hints and tips (Appendix J).

On February 21:

- The targeted science classes begin their research. The science teacher will explain their assignment.
- Students come into the LC with their regular science teacher to do research on their scientist.

- Have brochures available to help remind students of search techniques and web sites that they can use for their research.

From February 21-28, the students from the targeted science classes will also be coming into the LC to do research during their Student Assisted Time (S.A.T.) Individual assistance will be given to students who are having trouble finding information.

On February 28:

- Students present a time line on their scientist and give an oral report during their regular science class.

During the week of March 4:

- Conference with the science teacher.
- Did the teacher think the students did a good job with their research project?
- Did they find books from using the card catalog and information from the World Wide Web?

On March 7:

- Make copies of the Likert Survey for both targeted classes.
- In the regular science classroom, explain that you would like them to do the same survey as they had done on January 24.
- Hand out the survey. They need a pencil. They do not put their name on the survey.
- Allow time to finish. This should not take more than 15 minutes.

During the week of March 11, go over the surveys.

On March 14:

- In the regular science room during their regular class periods, give the targeted students some feedback on how well they did on their research. Ask them for feedback on the entire project since January.
- Have a little celebration. Hand out a treat.

Methods of Assessment

The questionnaire will give the researcher insight on when students use the school LC and/or the public library. It will also give some background information about the students' interest in computers and how the students use the computers.

The questionnaire will consist of 10 questions. Students will circle the answers that they feel best answers the questions. Two sixth-grade science classes with the total number of about 54 students will be given the questionnaire. The classroom teacher will use this as a normal class assignment, which will be completed during a regular classroom period. The classroom teacher will administer and collect the questionnaire, which will be administered between January 2002 and March 2002.

By observing the students as they work on the computers, the researcher will be able to assess the students' ability to find information effectively and within a designated period of time. This will help the researcher decide whether the students have had enough instruction in library and computer use to find the appropriate materials.

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Using the computers and resources in the LC/library, students will be given 20 minutes to find the answers to 10 questions. The students will be told that the activity will be used as part of an assignment for the researcher's graduate class. The classroom teacher will use this as a normal class assignment, which will be completed during regular classroom periods. The activity will be done between January 2002 and March 2002. It will be administered to two sixth-grade science classes with the approximate total of 54 students.

The five questions on the Likert Survey will give the researcher a better understanding of the students' attitude about using computers and the school LC. The survey will help determine if the students were given instructions on the use of the computers to find information and library materials.

The students will be told that the researcher, as part of a graduate class project, will use the information from the survey. The classroom teacher will use this as a normal class assignment, which will be completed during a regular class period. The survey will be done between January 2002 and March 2002. It will be administered to two sixth-grade science classes with the approximate total of 54 students.

CHAPTER 4

PROJECT RESULTS

Historical Description of the Intervention

The intervention chosen by the researcher involved developing materials that would aid in research skills. The students involved were two sixth-grade science classes. The objective of the project was to increase students' ability to use the library computers and the World Wide Web in science class for a research project. In order to accomplish the project objective, a learning activity using the computers and materials that addressed research were developed.

During their regular science class, two sixth-grade classes were given instruction in the LC on how to use the computers to find books in the library. Students went into the LC from their classroom. There were two students to each computer and one worksheet for each group. With the aid of the VGA TV connected to a computer monitor, the researcher/LC Director demonstrated the various search methods for locating books and materials by using the computer card catalog. The lesson explained finding books on the card catalog by title, author, subject, keyword, and the Boolean or power search. The lesson also identified the electronic encyclopedia on the computer. After the demonstration, the students used the computers to search for the answers on their worksheet.

The students were in the Learning Center during their entire class period of 42 minutes. Before returning to their classroom, every student was given a bookmark that listed the classifications of the Dewey Decimal system Before the students returned to the LC to do their research paper, posters and signs were put up near the computers (Appendix I). The signs were put up to remind the students of the various card catalog search methods. The posters aided in locating books by Dewey Decimal, and new, colorful signs were made for the bookshelves to help students locate various call numbers.

To help students in their search for specific information about the scientist that they would be researching, a TIPS brochure was given to each student when they entered the LC. The brochure gave them some helpful information for searching the library's card catalog, the World Book Online, and the World Wide Web. The Learning Center Director was also available to aid students.

Presentation and Analysis of Results

In order to assess the effects of the research activity lessons given on searching on the computers and using the library card catalog, the researcher/LC Director gave the students the Likert Survey. Instruction given to the students was later measured by the completeness of their research report and timeline for their science class. The Likert Survey was also given to the students as a presurvey. This survey gave the researcher the information needed to evaluate whether the students had gained knowledge about finding information. The following graphs show the difference before the intervention and after

the intervention. These are labeled presurvey and postsurvey and are grouped by statements as they appear on the survey.

A graph showing how students felt about using computers before and after the intervention is shown in Figure 5.

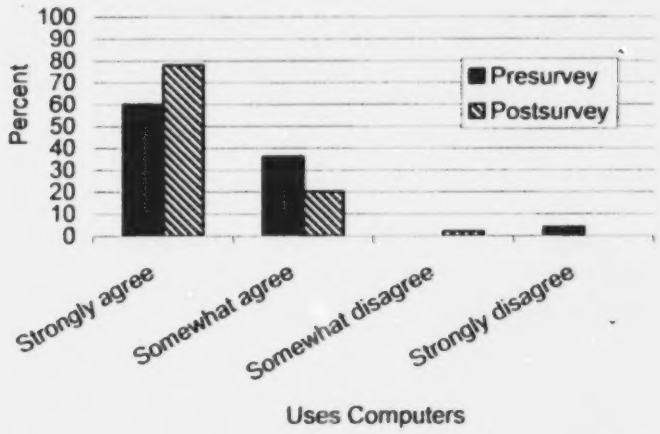

Figure 5. Students' attitude about using computers March 14, 2002

Before the intervention, 60% of the students stated that they felt comfortable using computers. After the activities and lessons about using the computers in the Learning Center, almost 80% of the students strongly agreed that they felt comfortable using the computers. This would indicate that students felt more comfortable after they had been given instruction on how to use the computers to find information. On the presurvey, four percent of the students strongly disagreed with the statement, but on the postsurvey no students indicated that they strongly agreed with the statement. That

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would indicate that the activities helped those students feel more comfortable about using the computers.

Students were requested to indicate whether they had been instructed on the use of the Internet. The presurvey and postsurvey information is shown in Figure 6.

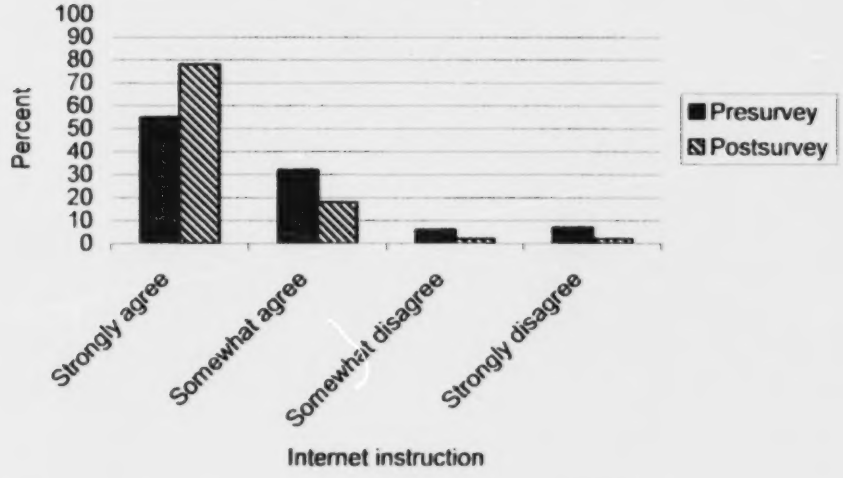

Figure 6. Students' attitude about Internet instruction March 14, 2002

When the sixth-grade science students had been asked if they had been instructed on the use of the Internet for research, over 50% of the students had indicated in the presurvey that they strongly agreed to that statement. On the postsurvey, almost 80% of the students indicated that they had been instructed.

The computer search was given as an intervention and only covered a small segment about finding information on the Internet. The students may have had additional instruction on using the Internet in their computer class. The TIPS brochure was also given to the students that listed Web sites that would be useful for their research. This may have helped them feel that they had more instruction on the use of the Internet than what had been given during their LC activity.

Figure 7 shows how students felt about being able to find books in the LC before and after the intervention.

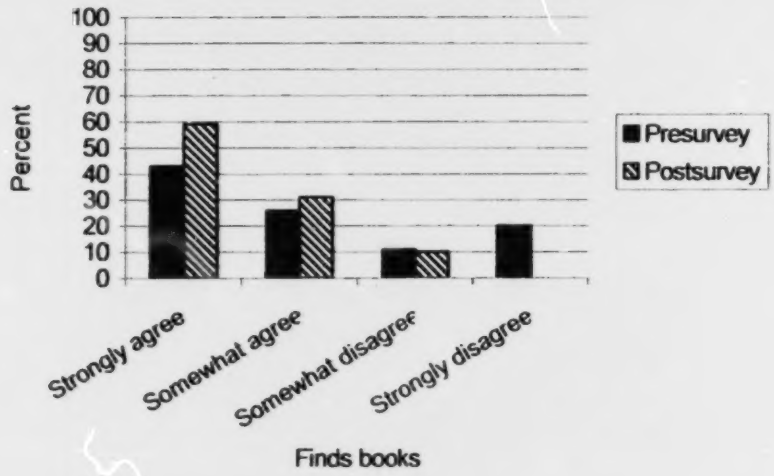

Figure 7. Students' attitude about finding books March 14, 2002

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Before the intervention, over 40% of the students strongly agreed that they knew how to use the computers to find books in the school LC. After the intervention, 60% of the students strongly agreed to the statement. The intervention should have yielded a higher percentage of students. There were several interventions that would have helped students use the computers to find books. The Computer Catalog Caper involved a lesson to help students locate information in the library and on the computer. The students still seemed unsure about being able to find a book on the computer card catalog and locate the same book on the shelf. The presurvey indicated that 20% of the targeted sixth-grade class strongly disagreed to the statement that they knew how to use the computers to find books in the LC. After the intervention, there were no students that strongly disagreed.

The students were requested to indicate whether they had been given instructions on how to use the Learning Center. Figure 8 shows the presurvey and postsurvey.

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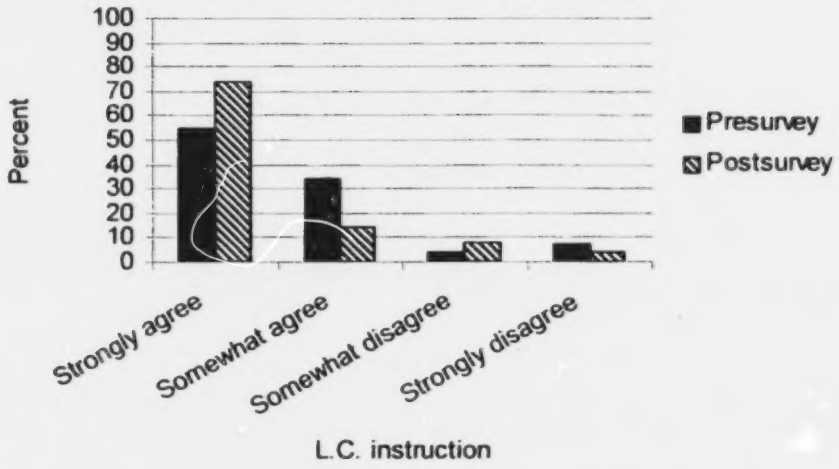

Figure 8. Students' attitude about LC instruction March 14, 2002

The postsurvey showed that over 70% of the students strongly agreed that they had been instructed on the use of the LC. This would indicate that the students felt that they had learned to use the Learning Center. There were still some students, though, that indicated that they had not been given instructions. Students may have felt that the statement meant knowing the procedure for checking out books and the rules of the LC, not just the instructions on using the computers.

Figure 9 indicates how the targeted sixth-grade science classes felt about asking the LC Director for help when using the LC.

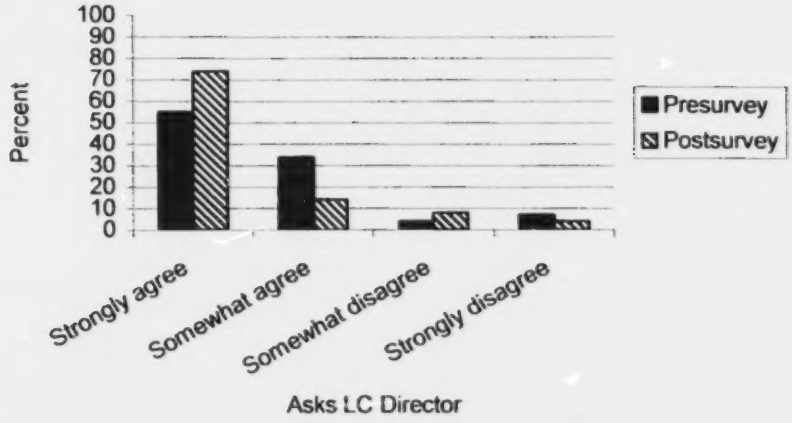

Figure 9. Students' attitude about asking the LC Director for help March 14, 2002

In the survey given before the intervention, over 50% of the targeted sixth-graders would ask the LC Director for help in finding information. After the intervention, over 70% of the students strongly agreed that they would ask for help. The activities conducted by the researcher may have helped the students become more familiar with the role of the LC Director, and they would feel more comfortable asking for help.

In the postsurvey, four percent of the students strongly disagreed with the statement about asking for help. The researcher/ LC Director hopes that those students were individuals who felt confident in their search skills and would not need help. Perhaps those were the same students who were able to find the "quote of the day" on the electronic encyclopedia when there no longer was a "quote of the day."

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Implications for Teaching

As the researcher and Learning Center Director, I knew how important it was for students to know how to find books and information in the school Learning Center/library. I decided to work with a sixth-grade science teacher who assigned the students a project researching various scientists.

My plan had been to work with the students on improving their computer research skills. This would cover searching for library books in the card catalog by the various search methods, finding information on the electronic encyclopedia, and finding information on the World Wide Web. I would go into their classroom one day a week for six weeks. The first day that I was to begin my project, the school was closed because of a "snow day." When I did get into the classroom to explain the project, the students were attentive and excited about doing computer activities in the Learning Center.

The students were prompt about getting their permission slips returned; only two students did not have their parent's permission to participate in the research project. These students did not have to do the Likert Survey, questionnaire, or the timed computer activity, but they were required to participate in the lesson on using the LC computers, and they were required to do the research project for their science class.

The first survey given, which was the Likert Survey, confused the students. They were not familiar with the type of answers available to them. I read them the first statement as a sample by adding the choices to the statement. For example, "You

strongly agree that you feel comfortable using computers. You somewhat agree that you feel comfortable using computers." I continued the sample by adding the last two choices to the statement. I believe this type of survey made them think a little more before they answered.

The students eagerly followed me into the LC to do the first computer activity, which was a timed activity. Since there were 12 computers, I chose the first 12 students in the first two rows. When a student finished the activity and returned to the classroom, the next student in line would come into the LC. Since one of the doors to the targeted classroom opened into the Learning Center, the students could easily come and go. The classroom teacher had given the students an assignment that they were working on before and after the computer activity.

During the activity, many students wasted time by chatting with their neighbor while they were at the computer. They also looked at their neighbor's monitor as a way to guide them in their own search. Some students did not get 20 minutes to work on their worksheet and had to continue during their study hall period.

I thought that a timed activity would be a good indication of how quickly students would be able to find information. Though it did give me an idea of how long students take to do some searching, keeping track of the 20-minute time period for each student was difficult; I was also observing them and making notes. I should have planned on more than one class period to do the activity.

For two weeks I did not visit either science class. After reviewing the timed activity, I decided I needed extra time to make a lesson that would address certain problems that the students were having with finding information. Then I was delayed because of scheduling changes that affected sixth-grade science classes.

I decided to design a lesson that would help the students find books on the computer card catalog. The lesson showed them how to search by title, author, subject, and Boolean. The students were familiar with the format of the Boolean search method because they had been using that same advanced search for searching the Internet. For this lesson, I was going to have the students work in cooperative groups, but I did not. I had not allowed for the extra time that it would take to put students into groups and assign them a task. Students walked into the library single file and shared a computer with the next person in line. Extra students were allowed to sit with any group. The students made the decision about who would search for the information and who would write it down. The students worked very well together, and were allowed to browse in the library when they finished.

A few days later when the students came into the LC to do the research for their scientists, I felt that most of them were very confident about locating books in the library and finding information in the electronic encyclopedia and on the World Wide Web. I was also available to help the students locate books and information.

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I observed the students as they presented their timelines to their classmates and displayed their work in the Learning Center. As a final activity, I had the students vote by using Five to Fists. Most of the students from both classes indicated by five fingers that they enjoyed the computer activities and felt they had learned something about finding information. The science teacher from the two-targeted classes indicated to me that the research projects were well done. The students were able to find pertinent information and presented it in an organized format. The teacher was pleased with the results of the research.

Conclusion and Recommendations

Many of the signs and posters used in the intervention were hand made. Signs made on the computer then printed on colorful paper worked well as the new shelf signs. Signs to remind students of the different search methods for the card catalog were also made on the computer. These were also displayed near the computers on brightly colored paper. Anyone can make signs to guide students. I would try to make them colorful so the signs would catch the student's attention.

The TIPS brochure had been made on the computer with a card-making program. The brochure had been folded and was easy for students to put into their binders. The poster for the six steps for research (Appendix K) had been made on a large piece of construction paper. I hung this poster in an area called the Writing Center. This area of the library had a small bookshelf with books and reference material to aid in writing.

I had previously purchased posters with the various Dewey Decimal classifications, but they had been placed near the bookshelves. For the intervention, the posters were hung on the wall near the computers. I was lucky to have a large Learning Center with many walls to display all my posters and signs.

As the media specialist/LC Director, I had observed students in the school library that did not know how to find information. Though many of the targeted students had attended the district's elementary schools where they would have used the same type of computer card catalog, it became apparent that they would need more instruction. The sixth-graders seemed knowledgeable about the World Wide Web, but spent a lot of time searching. Students did not have trouble accessing the Web, but they had trouble finding reliable information quickly. I did not have the time to teach the students how to effectively search the Internet. I also did not have time to do individual lessons on each of the six steps to research.

I still have problems with teachers that do not bring their students into the library for research instruction, and I still do not have full time support staff to assist me when I am instructing students, but I can give instructions to individual students as they require help. I will continue to instruct students about the various methods for finding books on the computer card catalog, electronic encyclopedia, and World Wide Web. The Computer Catalog Caper could be given as part of my sixth-grade orientation.

The research was successful because the students were able to use the computers to find books and information in their library. They have a better understanding of call

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numbers and the importance call numbers play in locating books on the shelf. The students also have knowledge of the electronic encyclopedia, The World Book Online. By doing this research, I demonstrated to the students that I could help them as a teacher and as their Learning Center Director.

Information literacy is the ability to know when there is a need for information, be able to identify, locate, and effectively use that information to solve problems. The ability to be information literate, can begin with good research skills. I laid the groundwork for the students to continue to successfully use the computers for searching for books and researching information for projects. These basic skills can be used throughout a student's lifetime and aid students in becoming information literate.

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APPENDICIES

Appendix A

Consent to Participate in a Research Study

Consent to Participate in a Research Study

I, _____, the parent/legal guardian of the minor named below, acknowledge that the researcher has explained to me the purpose of this research, identified any risks involved, and offered to answer any questions I may have about the nature of my child's participation. I freely and voluntarily consent to my child's participation in this project. I also understand that I may keep a copy of this consent form for my own information.

NAME OF MINOR: _____

_____

Signature of Parent/Legal Guardian Date

Appendix B

Child's Consent Form

Child's Consent Form

CHILD'S ASSENT: I understand why this research is being done. I understand how it may help me or other children and any discomforts it may cause me. I have been told that I don't have to give an answer if I do not want to and that I can stop the interview at any time for any reason. All the questions I had about this study have been answered. I would like to take part in this study.

_____ _____

Name of Minor Participant Date

_____

Witness (Signature)

Appendix C

Likert Survey

INSTRUCTIONS: Please rate how strongly you agree or disagree with each of the following statements by placing a check mark in the appropriate box.

Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree	1. You feel comfortable using computers.
Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree	2. You have been instructed on how to use the internet for research.
Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree	3. You know how to use the computers to find books in the Learning Center.
Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree	4. You were given instructions on how to use the Learning Center.
Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree	5. You ask the Learning Center Director for help when you are having trouble finding information.

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Appendix D

Questionnaire

QUESTIONNAIRE

Please circle your answer.

1. Do you enjoy using the Learning Center? YES NO

2. Do you enjoy using computers? YES NO

3. Circle the answer that best describes how often you use the Learning Center?

Once a week or less 2 or 3 times a week Once or twice a day.

4. Do you like to read? YES NO

5. Do you visit the public library with your family? YES NO

6. Do you use the public library when you need information for a research paper? YES NO

7. Do you use the Internet to find information for research projects or information for class assignments? YES NO

8. Do you have a computer at home? YES NO

9. When you have a research project to do, can you find the information you need in the Learning Center? YES NO

10. About how many hours a day do you spend using the computer?

Circle one less than 1 hour 1-2 hours more than 2 hours

Appendix E

Worksheet for Computer Search

COMPUTER SEARCH

1. Click on World Book Online. Search for information on Henry Ford. In what year was Henry Ford born? _____
2. Write down the call number of one book in the Learning Center that would give you information about scientists. _____

_____

3. What is the call number of a biography in our library about Henry Ford? _____
4. Does the Learning Center have a book on Stephen Hawking? If yes, write down the call number. _____
5. What is the name of the book in the Learning Center that would tell what James Rumsey invented? _____
6. Go to www.weather.com. What is today's temperature for Chicago? _____
7. Go to World Book Encyclopedia on the computer. Write down the quote for the day.

_____

8. Who invented the telescope?

_____

_____

9. According to the *Time Almanac 2001*, who is given credit for developing the zipper?

_____

10. In what year did Beethoven die? _____

_____

Appendix F

Direct Observation for Learning Center Activity

DIRECT OBSERVATION

Number of students who are talking

Number of students who have asked for help

Number of students who have finished before the time limit

How many questions did the students answer correctly within the time limit? _____

Appendix G

Lesson Plan for Computer Catalog Caper

Worksheet for Computer Catalog Caper

Lesson for
COMPUTER CATALOG CAPER

Goals: The students will be able to find books and information by using the computer card catalog. The students will be able to find information by using the electronic encyclopedia (World Book Online).

Purpose: Students in the designated classes will be using the computers to find information to do a research project on various scientists. Some students are unfamiliar with using the computer to find books in the Learning Center and articles in the electronic encyclopedia. This activity will teach and refresh students on the use of the computer card catalog and the electronic encyclopedia.

The Plan: Meet with students in their classroom. Tell them they will be going into the Learning Center for a lesson on using the computers to find books and information. Students will partner up with the next person in line as they leave the class. Students will work with one or two other people.

How it works: Once students are in the L.C., go over some basics about finding books. Do a couple of the questions with the students, then let them work with their partners. Check for questions and problems. Give them the entire time. Students who finish may use the computers to find information that is of interest to them. Go over the answers with the students.

Grading: Students will not be graded on the activity. The activity will be collected and observed for problems. The important skill will be for them to be able to use this same information for their research reports.

Supplies: Worksheet, pencils, VGA TV hooked up to one of the Learning Center computers.

6th grade science class
1 - 40 minute period

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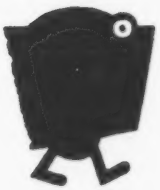
COMPUTER CATALOG CAPER



WHAT PICTURE OR ICON ON THE COMPUTER DO YOU CLICK ON TO GET INTO THE CARD CATALOG?

1. THE PICTURE OF THE EARTH?

2. THE PICTURE OF THE SPYGLASS AND BOOKS (OPAC)?

3. D15 FOR STUDENTS?

CLICK ON THE ICON FOR THE CARD CATALOG. (BE PATIENT. IT TAKES A COUPLE OF SECONDS.)

IN THE BOX AT THE TOP OF THE PAGE, TYPE IN MARIE CURIE.

TITLE SEARCH: CLICK ON TITLE
HOW MANY BOOKS HAVE THE TITLE MARIE CURIE? _____

SUBJECT SEARCH: CLICK ON SUBJECT (KEEP MARIE CURIE IN THE BOX AT TOP!)

HOW MANY BOOKS ARE LISTED UNDER THE SUBJECT MARIE CURIE?_____

KEYWORD SEARCH: CLICK ON KEYWORD (MAKE SURE MARIE CURIE IS STILL TYPED IN THE BOX)

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HOW MANY BOOKS ARE LISTED UNDER THE KEY WORD MARIE CURIE? _____

NOW, FOR A DIFFERENT TYPE OF SEARCH, TRY THIS:

IN THE SEARCH BOX, DELETE MARIE CURIE AND TYPE IN WOLVES

CLICK ON **POWER**

GO DOWN TO THE FIRST BOX, WOLVES SHOULD BE IN THE BOX

FIND AND CLICK ON **SUBJECTS** IN THE "ALL FIELDS" BOX

CLICK IN THE **BUT NOT** BOX

TYPE IN FICTION, FIND **SUBJECTS** IN THE "ALL FIELDS" BOX

CLICK IN THE **BUT NOT** BOX

TYPE IN **PAPERBACK, FIND SUBJECTS** IN THE "ALL

CLICK ON SEARCH

*ABOUT***HOW MANY NON FICTION BOOKS DO WE HAVE ABOUT WOLVES?** _____

TRY ONE ON YOUR OWN. FIND BOOKS ON CATS **BUT NOT** WILD CATS IN THE SUBJECT AREA.

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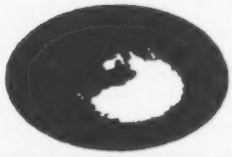

NOW LET'S GO TO THE ENCYCLOPEDIA ON THE COMPUTER

CLICK ON **WORLD BOOK ONLINE**

IN THE SEARCH BOX, TYPE IN MARK TWAIN

CLICK ON **GO** OR **ENTER**

WHAT IS MARK TWAIN'S REAL NAME? _____

Try these on your own.

What year did the Wright Brothers fly their first airplane? _____

GO TO THE CARD CATALOG

FIND THE CALL NUMBER FOR THIS BOOK: This book says that Reese's Peanut Butter Cup is the #1 selling candy in the U.S. The book is THE TOP 10 OF EVERYTHING. What is the call number? _____

The book *TWENTIETH-CENTURY POP CULTURE* states that the movie ET came out in 1982. What is the call number of this book?_____

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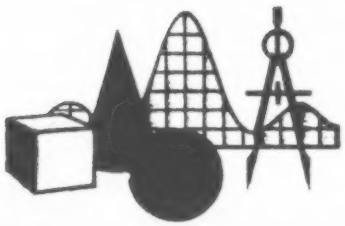
Appendix H

Instructions for Research on Scientists

List of Scientists for Research Project

Worksheet for Life and Work of a Scientist

Assessment Scoring Rubric



SCIENTISTS

You will have 5 days to complete your research on your scientist. Use your time well.

You need the following information about your scientist:

1. Date of birth and death (if needed). Where did your scientist live? Give the country.

2. What type of science did he/she study? Example: biology, anatomy, zoology, etc.

3. How did your scientist improve his/her field of study? Example: Did he/she invent or discover something important? Did he/she come up with a new way of doing an experiment?

TIMELINE:

You also need to complete a timeline of your scientist's life. Begin with his/her birth and end the timeline with his/her death. Put all the important dates in between these two points that you find during your research.

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SCIENTISTS FOR RESEARCH PROJECT

ARISTOTLE

ELIZABETH BLACKWELL

COPERNICUS

JACQUES COUSTEAU

THOMAS ALVA EDISON

ALEXANDER FLEMING

GALILEO GALILEI

BEN FRANKLIN

RACHEL CARSON

ALBERT EINSTEIN

LEONARDO DA VINCE

ALEXANDER GRAHAM BELL

CHARLES BABBAGE

EDWIN LAND

WILLIAM MORTON

ENRICO FERMI

NIKOLA TESLA

GUIGI GALVANI

CHARLES GOODYEAR

WILLIAM HARVEY

EDWIN HUBBLE

EDWARD JENNER

JOHANNES KEPLER

ANTOINE LAVOISIER

LOUIS & MARY LEAKEY

JEAN LINDENMANN

CARL LINNAEUS

MARGARET MEAD

MENDEL

SIR ISAAC NEWTON

FLORENCE NIGHTINGALE

LOUIS PASTEUR

JONAS EDWARD SALK

FREDERICK SANGER

ANTONE VAN LEEUWENHOEK

ANDREAS VESALIUS

ALESSANDRO VOLTA

WRIGHT BROTHERS

HANS ZINSSER

Name_____Hour_____

THE LIFE AND WORK OF A SCIENTIST

Name	
Life Dates	
Where scientist lived and worked. (Country, City, etc.)	
Major Field of study	
Important Contributions	
Additional Information	

ASSESSMENT SCORING RUBRIC

NAME: _____ DATE: _____

Factor: Coverage of Material - Timeline

1	2	3	4	5
Poorly organized, only a few highlights included		Fair organization, some good highlights		Well-organized, covers scientist's life fully

Factor: Depth of Knowledge - Presentation

1	2	3	4	5
all very general not well thought through		Some interesting facts, shows some depth of knowledge		Info is meaningful, interesting, and understandable

Factor: Thoroughness-Worksheet

1	2	3	4	5
Most required parts not evident		Most required parts evident		All required parts plus some extras

Comments:

Total Points: _____

14 - 15	A
10 - 13	B
7 - 9	C
4 - 6	D
3 & below	F

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Appendix I

Card Catalog Search Sign

Boolean Search Sign

CARD CATALOG SEARCH

USE TITLE OR AUTHOR SEARCH

USE KEYWORD TO SEARCH CONTENT AND TITLE AND SUBJECT

USE SUBJECT TO PINPOINT THE SEARCH

USE THE BOOLEAN SEARCH TO EXPAND OR LIMIT THE SEARCH

BOOLEAN SEARCH

TO LIMIT OR EXPAND YOUR SEARCH, USE	FOR BOOKS ON:
AND	CATS AND DOGS
OR	CATS OR DOGS
NOT	CATS NOT DOGS

Appendix J

TIPS Brochure

TIPS

MISCELLANEOUS INFORMATION

OPAC IS THE COMPUTER CARD CATALOG

SEARCH BY SUBJECT OR KEYWORD

NOT EVERY SUBJECT HAS A WEB ADDRESS, START BY TYPING YOUR INFORMATION INTO SEARCH

HELPFUL INFORMATION

Try searching in the:
-Encyclopedia (use the encyclopedia index first)

-*Webster's Biographical Dictionary*

-Search by keyword on the card catalog under the person's last name

-92=is a call number for a biography about one person

-920=is a call number for a biography of more than 1 person

WEBSITES:

World Book Online

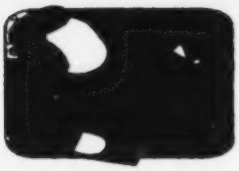
www.bluepete.com/biographies/science/scients.htm

www.kidsclick.com

click on search, type in your subject

Appendix K

6 Steps to Research



6 STEPS TO RESEARCH

1. Task Definition

1.1 Define the information problem

1.2 Identify information needed in order to complete the task (to solve the information problem)

2. Information Seeking Strategies

2.1 Determine the range of possible sources (brainstorm)

2.2 Evaluate the different possible sources to determine priorities (select the best sources)

3. Location and Access

3.1 Locate sources (intellectually and physically)

3.2 Find information within sources

4. Use of Information

4.1 Engage (e.g., read, hear, view, touch) the information in a source

4.2 Extract relevant information from a source

5. Synthesis

5.1 Organize information from multiple sources

5.2 Present the information

6. Evaluation

6.1 Judge the product (effectiveness)

6.2 Judge the information problem-solving process

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